

RS3040A Mini Laser Engraving Machine

User Manual



Redsail Tech Co., Ltd

<http://www.hflaser.com>

Thank you very much for buying RS3040A laser engraving machine.

In order to make sure that your laser engraving machine can work steadily for a long period of time, please read this manual carefully, be familiar with and master the operation method and technological requirements of the machine in advance.

If abnormal situation takes place, please turn off the power immediately and consult this manual. If the problem can not be solved, please contact with us or the local customer service agent to work out a solution.

In order to guarantee the personal safety and machine security, please bear in mind the Equipment Maintenance and Safety Cautions.

Statement

1. The manufacturer has the right to modify the products without notification to customers in advance.
2. The manufacturer only undertakes legal responsibilities for his products sold to customers. The manufacturer is not responsible for other losses caused by troubles of the machine.



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I function of laser engraving machine

The application scope of laser engraving machine is very wide. Different designs have been used in machines of our company to meet the needs of all use. We believe that the type of machine you have chosen will surely be of great help to your work. The following introductions might provide you information for enlarging the scope of usage and to use laser machine well.

1. Printing and packaging trade: rubber plate laser engraving, laser cutting of paper product, etc.
2. Trade of artwork and gift: bamboo slip laser engraving, wooden book laser engraving, redwood laser engraving, double-colored plate laser engraving, box-shaped artwork laser engraving, marble laser engraving, glass laser engraving, etc..
3. Trade of leather clothing: genuine and synthetic leather cutting and surface pattern engraving of different kinds of shoes and leather clothing, pattern engraving of all kinds of clothing and textile, etc..
4. Trade of model producing: building model laser engraving (cutting), laser engraving (cutting) of aviation and navigation models, laser engraving (cutting) of cartoon figures, industrial model laser engraving (cutting), etc.

II Installation of RS3040A laser engraving machine

1. Dismount of the packing box

After opening the packing box, please check out whether there is any damage on laser tube or not. Then check up the complete machine to see whether there is any scratch on the surface and the completeness of fittings.

2. Positioning

The machine should be put in cool and dry places. It should be placed close to earth wire. When the machine has been debugged, please don't move it again, otherwise the ray path has to be readjusted.



3. Installation

- 1) Install the EASYCUT 2.0 and insert the Dongle (USB key) to run the software.



Dongle (USB KEY)

- 2) Connect the data cable (232 port) with the computer.
- 3) Fill the water tank with pure water, place the water pump (aquarium) inside the water, feel the water outlet and connect left one of the tubes with water pump. (There are two pipes at the back of the RS3040A, they connect with laser tube to supply water cooling), 10-20 seconds later, water comes out from right tube. Let the water circulate in the water tank. The water tank should have at least 10 Liter clear water, and the water temp should under 20 °C.

If fail to supply water to laser tube, the laser tube will burn out quickly!!



Place the pump inside the water



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Water input left pipe and come out at right pipe.

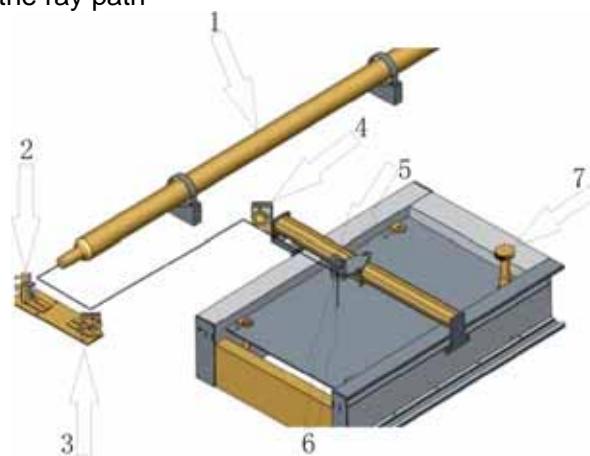
- 4) Connect the earth wire and grounding the machine shell for safety.
- 5) Connect the blower fan with power supply and place it at right position, and then start the machine.



- 6) Test the laser and adjust the mirror as following steps:

III Structure and adjusting method of ray path

1. Structure of the ray path

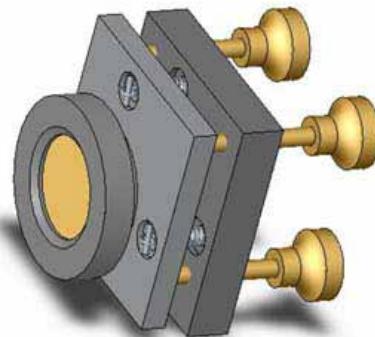


1. Laser tube
2. The 1st reflect mirror
3. The 2nd reflecting mirror
4. The 3rd reflecting mirror
5. The 4th reflecting mirror
6. Focus lens
7. Working platform up and down control screw

2. Structure of the optical components

Ray path is ray guide system. RS3040A has adopted flying-optical system. The complete system is made up of laser tube; four reflect mirrors; focus lens and relevant adjusting devices. These are the main parts of the machine.

Ray path has close relationship with the effect of engraving and cutting. Therefore please be patient and careful when adjusting the ray path.



1st, 2nd, 3rd Reflect mirror adjustable screw



4th reflect mirror and focus lens





Focus length: 62mm (from the surface of processed material to the up surface of the diamond board, it is marked with a red arrow in this figure)

3. Ray path adjusting

1) Reflect mirror adjusting

Stick a piece of paper on 1st reflect mirror, press “test” button and make a dot, your must confirm the dot in the center of mirror; stick a piece of paper on 2nd reflect mirror, press “test” button and make a dot, using adjusting screw of the 1st reflect mirror to make the dot in the center of the 2nd reflect mirror; stick a piece of paper on 3rd reflect mirror, then move the laser head to left corner of the machine. Press “test” button and make a dot. Then move the head to the right corner of the machine to make another dot. Using adjusting screw of the 2nd reflect mirror to make these two dots totally matched together; stick a piece of paper on 4th reflect mirror, then move the laser head to up corner of the machine. Press “test” button and make a dot. Then move the head to the down corner of the machine to make another dot. Using adjusting screw of the 3rd reflect mirror to make these two dots totally matched together.

Move the laser head to the anywhere, Press “test” button to make a dot. Then move it to another position, make another dot. Make these two dots totally matched together.





1st reflect mirror



2nd reflect mirror



3rd reflect mirror



4th reflect mirror



Adjust the work plate

BECAREFUL OF THE LASER BEAN WHEN ADJUSTING.

ESPECIALLY NEVER LET THE LASER GOES INTO YOUR

EYES!!



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IV Basic operation procedure

1. Starting up

- 1) Start the water pump; let the water in laser tube circulate for 3 minutes.
- 2) Turn on the power of machine.
- 3) Turn on the power of blower fan.
- 4) Turn on the laser power, and press “test” button to see if there is ray.
- 5) Use the arrow key to move the laser head, make sure that it can be moved.
- 6) Adjust the work plate, and fix up the focus length.
- 7) Operate the Easycut 2.0 in the computer to start work.

2. Shut down

Turn off the machine, blower fan, water pump.

V Cautions and maintenance

1. Safety cautions

- 1) It is forbidden to start the machine without grounding. The ground wire of machine must be connected with the earth. It can not be connected on facilities such as doors, windows, water pipes, and so on. The wire should be pulled to the outdoor ground.
- 2) Check the submersible water pump to see if it can let the water out each time after starting the machine. It is forbidden to start the machine up when water can not come out from the pump.
- 3) Operators can not leave the machine when it is working so as to avoid unnecessary loss.
- 4) Water container should be a bit larger to make sure that there is at least 10 Liter water in circulation. The water temperature should be under 25°C. If the temperature is too high, the water should be changed. It is better to use pure water so that there isn't any contaminant. Circulating water should be changed regularly (every day).
- 5) Because there is laser and high volt in the machine, non-professional workers should not disassemble the machine without authorization.
- 6) Reflect mirror and focus lens should be wiped with special camera lens paper or medical-use cotton wetted by mixture of alcohol and ether. Cleaning of mirrors and lens should be done once a week. It is required that the grounding of all parts of the machine and user's computer should be safe to avoid damage of machine and injuries caused by



ESD.

7) Blower fan must be turned on while working, so as to avoid pollutions on mirrors and lens. It is forbidden to put any flammable and explosive articles close to the equipment so as to avoid fire.

8) Any irrelevant total reflection or diffuse reflection objects can not be placed in the equipment to prevent the laser from reflecting on human body or flammable articles directly.

9) The water in laser tube should be drawn off in winter, in order to avoid ice cracking of the tube.

10) When the machine is working, operators should examine the working conditions (especially the water supply and temperature of circulating water, etc.) at any moment.

11) The machine should be put in places where there is no interfere and harmful effect of pollution, strong electricity, strong magnetism, and so on.

12) When the power supply is not stable, please don't start the machine. It is suggested to use voltage regulator.

13) People who have not been trained should not use the machine.

14) Don't strike the keys and buttons strongly. Please press it lightly to avoid damages of those keys and buttons.

15) In case there is damage or fire, please turn off the power at once.

16) Don't start the machine when there is thunder or lightning.

Users should follow all the above mentioned regulations carefully. Otherwise the manufacturer will not take responsibility for any troubles of the machine or physical injuries.

2. Maintenance

1) It is forbidden to use circulating water of poor quality, because it may affect the laser power seriously and shorten the service life of laser tube. The manufacturer is not responsible for repairs and maintenance of damages of the tube caused by the using of poor-qualified water. It is suggested to use pure water.

The minimum amount of cooling water should be 10L. Make sure that the water can submerge the submersible pump.



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- 2) Water temperature should be examined at all times during the working process. Once the water turns to be warm, please change it right away (the right way of changing the water is to get out of some hot water and fill in cold water).
- 3) If there is any particular requirements, the Current shouldn't be no more than 20MA, thus to avoid the tube becoming aged quickly.
- 4) Water tank, water pump and water inlet rubber tube should be cleaned once every week.
- 5) Lens and mirrors should be cleaned once every day before starting the machine (Notice: not at the time of being off duty).
- 6) Don't clean the reflecting mirror carefully when it is on the machine, otherwise, the ray path must be readjusted!
- 7) When cleaning the 4th reflecting mirror and condensing lens, they must be removed from the machine. After that, the mirror and lens should be fixed firmly but not too tightly for fear of breaking up.
- 8) Please pay attention to the focus length before starting the machine every time. If the length is not accurate, it will greatly affect the engraving effects.
- 9) Please clean the working plate every time after working. Don't make the dust fly upwards.
- 10) Guide rails should be cleaned, and lubricant should be added onto the rail every two weeks.
- 11) The outer equipments (blower fan, air pump, etc.) should be cleaned once every two weeks.



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VI Problems and Solutions

Problem	Cause	Solution
No rays	Laser power supply is broken	Replace it with a new power supply
	Reflect mirror or focus lens is broken	Replace it with a new one
	Laser tube is broken	Replace it with a new one
	Main board is broken	Replace it with a new one
The object can not be full cut	Focus lens is polluted	Clean the lens
	Reflecting mirror is polluted	Clean the mirror
	Ray path is not right	Adjust the path
	Laser tube is old	Replace it with a new one
The effect isn't clear	The belt is relaxed	Fasten it
	Focus length error	62mm

VII Regulations of repair guarantee

We are responsible for the repair of complete machine for one year. Guarantee period for repair of laser tube (we are not responsible for blowing out of laser tube caused by high water temperature and ice cracking caused by low water temperature) and optical glass is three months, and that of outer equipment (blower fan, air pump, water pump) is half a year.

Regulations of repair guarantee:

1. Within the guarantee period, our company will provide service for problems that appear in normal using conditions for free.
2. Certain amount of maintenance fees will be charged when the guarantee period is over.
3. Our company will not provide maintenance and repair for free in circumstances that the sealing paper is damaged caused by disassembly of the machine without authorization, the machine is not used in correct way, problems caused by calamities of nature and calamities imposed by other people, or the customer can not show us the repair guarantee certificate of the product.



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4. It is very important to keep the serial number of the product given by the manufacturer when the product leaves factory. Only when information contained in it has been confirmed, can customers enjoy after-sale service provided by our company.

5. The manufacturer has the right to modify specifications of the product without notification to customers in advance.

6. The manufacturer only undertakes legal responsibilities for his products sold to customers, but is not responsible for other losses caused by problems of the machine or indirect compensation responsibility. The manufacturer will not take any compensation responsibility for loss of commercial profits, service interruption or any other monetary loss caused by the use or abnormal use of the product.

7. This certificate will be valid only after being stamped by distributor. It will be invalid if altered.



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